

[54] **NON-REACTIVE RADIAL LINE POWER DIVIDER/COMBINER WITH INTEGRAL MODE FILTERS**

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[58] Field of Search ..... 330/286, 287, 295, 53, 330/56; 333/125, 127, 136, 21 A

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[57]

### ABSTRACT

Disclosed is a parallel plate radial transmission line having parallel plate spacing of less than  $\lambda/2$  and which utilizes a specific higher order mode, preferably the first higher order circumferential mode. Undesired modes are suppressed by mode suppression slots formed in one or both of the parallel plates and which are oriented parallel to the current flow lines of the particular mode that is used. These slots have a negligible effect on the mode being used but they couple out other modes that are generated by means such as by imperfections and imbalances in any active devices coupled to the radial line. A centrally located feed is used to launch circularly polarized energy of the TE<sub>11</sub> mode in the particular circumferential mode in the radial line. The feed may also receive circularly polarized energy of the particular circumferential mode in the radial line, linearly polarize that received energy and conduct it in the TE<sub>11</sub> mode.

33 Claims, 4 Drawing Sheets

